

July 17, 2006

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Stop P1-137  
Washington, DC 20555-0001

ULNRC-05312

Ladies and Gentlemen:

**DOCKET NUMBER 50-483  
CALLAWAY PLANT UNIT 1  
UNION ELECTRIC CO.  
FACILITY OPERATING LICENSE NPF-30**



**10CFR Part 21 Written Notification regarding PRIME  
Measurement Products, Models 763 and 763A Gauge Pressure  
Transmitters and Model 764 Differential Pressure Transmitters**

This report is being made in accordance with 10CFR21.21, Notification of failure to comply or existence of a defect and its evaluation. This notification is being sent to inform you of a safety concern related to PRIME Measurement Products, Models 763 and 763A Gauge Pressure Transmitters and Model 764 Differential Pressure Transmitters.

New commitments are identified in this correspondence. None of the material in this response is considered proprietary by Union Electric.

If you have any questions or require additional information, please contact Mr. David R. Waller, Supervising Engineer at 573-676-8595.

Sincerely,

*K. A. Mills 17 July 06*  
K. A. Mills  
Supervising Engineer  
Regional Regulatory Affairs  
/ Safety Analysis

Enclosure 1) 10CFR Part 21 Report

IE19

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*(Certrec receives ALL attachments  
as long as they are non-safeguards  
and public disclosed).*

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### LIST OF COMMITMENTS

The following table identifies those actions to which AmerenUE has committed in this document. Any other statements in this document are provided for information purposes and are not considered commitments. Please direct questions regarding these commitments to Mr. David R. Waller, Supervising Engineer at 573-676-8595.

COMMITMENT	Due Date/Event
1. Inspection of all PRIME Measurement Products, Models 763 and 763A Gage Pressure Transmitters and Model 764 Differential Pressure Transmitters, which are installed at Callaway Nuclear Plant to determine actual condition of connector assemblies to the 39 installed transmitters identified in this report.	Prior to restart from Refuel 15
2. Rework or replacement, as necessary, of connector assemblies to the PRIME Measurement Products, Models 763 and 763A Gage Pressure Transmitters and Model 764 Differential Pressure Transmitters, which are identified as defective in the inspection of installed transmitters at Callaway Nuclear Plant to ensure system operability and environmental qualifications of the transmitters are met.	Prior to restart from Refuel 15

**ENCLOSURE**

**10 CFR 21 WRITTEN NOTIFICATION**  
**PRIME MEASUREMENT PRODUCTS, MODELS 763 AND 763A**  
**GAGE PRESSURE TRANSMITTERS AND MODEL 764**  
**DIFFERENTIAL PRESSURE TRANSMITTERS**

This report is being made in accordance with 10CFR21.21, Notification of failure to comply or existence of a defect and its evaluation, specifically including sections 10CFR21.21(3)(ii) and 10CFR21.21(4). This notification is being sent within thirty days of our initial notification, which was made by facsimile to the NRC Operations Center, dated June 19, 2006. The initial notification may be referenced in EN # 42658.

**Name and address of individual informing the NRC:**

D. Wade Griffith  
(573) 676-4318  
AmerenUE  
P.O. Box 620  
Fulton, MO 65251

**Identification of Facility:**

Callaway Plant Unit 1  
AmerenUE

**Basic components which contain a defect:**

PRIME Measurement Products,  
Models 763 and 763A Gage Pressure Transmitters  
and Model 764 Differential Pressure Transmitters

**Firms supplying basic component which contains a defect:**

PRIME Measurement Products (formerly ITT Barton)  
and Westinghouse Electric Corporation

**Nature of defect:**

Callaway Plant received a notification dated May 18, 2006, from PRIME Measurement Products (formerly ITT Barton) stating Barton Model 763 and 763A Gage Pressure Transmitters and Model 764 Differential Pressure Transmitters may have defective external lead-wire connectors, which could affect their performance during certain accidents. The notification provided by PRIME Measurement Products stated the affected transmitters were manufactured after May 1982 and shipped from the factory prior to April 1, 2006.

The defect is characterized as follows:

The transmitters' external lead wires enter the electronics enclosure through a hermetic seal called a connector assembly. The external lead wires are soldered to the glass sealed pins of the hermetic seal. Epoxy potting is used to structurally support the soldered wire connections and establish a seal to protect the solder connections from shorting, which could be caused by an electrically conductive accident environment. The defect is the insulated portions of the wires in the connectors, manufactured after May 1982, may not be embedded deeply enough into the epoxy potting to provide an electrical connection which would not be affected in an accident environment.

The notification from PRIME Measurement Products did state actual transmitter installation may preclude shorting of exposed conductors, due to the existence of conduit, conduit seals, and special wire connectors, which could protect the exposed wires at a defective connector from conductive moisture.

**Date on which information of the defect was obtained:**

On May 30, the VETIP Coordinator at Callaway Plant received a Nuclear Industry Advisory from PRIME Measurement Products entitled Barton Transmitter Defective Connectors, dated May 18, 2006.

**Location of basic components containing defect:**

The Callaway Engineering department identified twelve Barton transmitters and sixteen extra connector assemblies in warehouse stock, which were potentially affected by the industry advisory. (Note: this is a correction to the information in the initial notification, EN # 42658, which inaccurately stated "thirty applicable Barton transmitters and connector assemblies in warehouse stock".)

The Callaway Engineering department has also identified thirty-nine transmitters installed at Callaway Plant, which are potentially affected. The plant component identification, component description, and plant location of each of these installed transmitters are listed in the following table.

<b>Potentially Affected Transmitters Currently Installed In Plant</b>		
<b>Component Identification</b>	<b>Description</b>	<b>Location</b>
ABPT0514	SG A MS OUTLET CHANNEL 1 (RED) PRESS. XMTR.	Auxiliary Building
ABPT0515	SG A MS OUTLET CHANNEL 2 (WHITE) PRESS XMTR	Auxiliary Building
ABPT0516	SG A MS OUTLET CHANNEL 4 (YELLOW) PRESS XMTR	Auxiliary Building
ABPT0524	SG B MS OUTLET CHANNEL 1 (RED) PRESS XMTR	Auxiliary Building
ABPT0525	SG B MS OUTLET CHANNEL 2 (WHITE) PRESS XMTR	Auxiliary Building
ABPT0526	SG B MS OUTLET CHANNEL 3 (BLUE) PRESS XMTR	Auxiliary Building
ABPT0534	SG C MS OUTLET CHANNEL 1 (RED) PRESS XMTR	Auxiliary Building
ABPT0535	SG C MS OUTLET CHANNEL 2 (WHITE) PRESS XMTR	Auxiliary Building
ABPT0536	SG C MS OUTLET CHANNEL 3 (BLUE) PRESS XMTR	Auxiliary Building
ABPT0544	SG D MS OUTLET CHANNEL 1 (RED) PRESS XMTR	Auxiliary Building
ABPT0545	SG D MS OUTLET CHANNEL 2 (WHITE) PRESS XMTR	Auxiliary Building
ABPT0546	SG D MS OUTLET CHANNEL 4 (YELLOW) PRESS XMTR	Auxiliary Building
AELT0501	SG A CHANNEL 1 (RED) WIDE RANGE LEV XMTR	Reactor Building
AELT0502	SG B CHANNEL 2 (WHITE) WIDE RANGE LEV XMTR	Reactor Building
AELT0503	SG C CHANNEL 3 (BLUE) WIDE RANGE LEV XMTR	Reactor Building
AELT0504	SG D CHANNEL 4 (YELLOW) WIDE RANGE LEV XMTR	Reactor Building
AELT0517	SG A CHANNEL 4 (YELLOW) NARROW RANGE LEV XMTR	Reactor Building
AELT0518	SG A CHANNEL 3 (BLUE) NARROW RANGE LEV XMTR	Reactor Building
AELT0519	SG A CHANNEL 2 (WHITE) NARROW RANGE LEV XMTR	Reactor Building
AELT0551	SG A CHANNEL 1 (RED) NARROW RANGE LEV XMTR	Reactor Building
AELT0527	SG B CHANNEL 4 (YELLOW) NARROW RANGE LEV XMTR	Reactor Building
AELT0528	SG B CHANNEL 3 (BLUE) NARROW RANGE LEV XMTR	Reactor Building
AELT0529	SG B CHANNEL 1 (RED) NARROW RANGE LEV XMTR	Reactor Building
AELT0552	SG B CHANNEL 2 (WHITE) NARROW RANGE LEV XMTR	Reactor Building
AELT0537	SG C CHANNEL 4 (YELLOW) NARROW RANGE LEV XMTR	Reactor Building
AELT0538	SG C CHANNEL 3 (BLUE) NARROW RANGE LEV XMTR	Reactor Building
AELT0539	SG C CHANNEL 1 (RED) NARROW RANGE LEV XMTR	Reactor Building
AELT0553	SG C CHANNEL 2 (WHITE) NARROW RANGE LEV XMTR	Reactor Building
AELT0547	SG D CHANNEL 4 (YELLOW) NARROW RANGE LEV XMTR	Reactor Building
AELT0548	SG D CHANNEL 3 (BLUE) NARROW RANGE LEV XMTR	Reactor Building

### Potentially Affected Transmitters Currently Installed In Plant

Component Identification	Description	Location
AELT0549	SG D CHANNEL 2 (WHITE) NARROW RANGE LEV XMTR	Reactor Building
AELT0554	SG D CHANNEL 1 (RED) NARROW RANGE LEV XMTR	Reactor Building
BBLT0459	RCS PRESSURIZER CHANNEL 1 (RED) LEVEL XMTR	Reactor Building
BBLT0460	RCS PRESSURIZER CHANNEL 2 (WHITE) LEVEL XMTR	Reactor Building
BBLT0461	RCS PRESSURIZER CHANNEL 3 (BLUE) LEVEL XMTR	Reactor Building
BBPT0403	RCS WR / RHR PMP B SUCT PORV CTRL PRESS XMTR	Auxiliary Building
BBPT0406	RCS WIDE RANGE PRESS XMTR	Auxiliary Building
BGFT0138A	EXCESS LTDN HX FLOW - - FLOW TRANSMITTER	Reactor Building
BGFT0138B	EXCESS LTDN HW FLOW - - FLOW TRANSMITTER	Reactor Building

#### Corrective action which has been taken, is being taken, or will be taken:

Twelve Barton transmitters and sixteen extra connector assemblies were identified in warehouse stock at Callaway Plant, which were potentially affected by the industry advisory. Inspections of all these operational spare parts were performed by the Callaway Quality Control department using the inspection method recommended by the manufacturer in the Nuclear Industry Advisory received. These inspections identified three transmitters, which had connectors that failed the inspection. Even though the connector lead wire insulation appeared adequate in a preliminary visual inspection of the connectors, the performance of the manufacturer's recommended flex test inspections revealed three connectors, which had exposed conductors and lead wire insulation separation from the epoxy, after flexing the lead wires. One connector had this defect on one lead wire and two connectors had this defect on both lead wires. These defective connectors were tagged as rejected material per the Callaway Quality Control program and removed from the operational spare parts inventory. None of the sixteen extra connector assemblies in stock were found to be defective.

Thirty-nine transmitters, which are installed at Callaway Plant, have also been identified by the Callaway Engineering department as potentially affected. An inspection plan is being developed to perform the required inspections, based on the following:

- safety significance
- potential accident environmental conditions
- ALARA considerations
- accessibility to transmitters with the plant on-line
- evaluated stay time in the containment building.



Work documents have been initiated to inspect and rework the transmitter connector assemblies for the potentially affected Barton transmitters installed at Callaway Plant. Replacement of connector assemblies to the PRIME Measurement Products, Models 763 and 763A Gage Pressure Transmitters and Model 764 Differential Pressure Transmitters, which are identified as defective in the inspection of installed transmitters will be performed to ensure system operability and environmental qualifications of the transmitters are met. This inspection plan extends to the plant startup following the next scheduled refuel outage at Callaway Plant. The Callaway Engineering department is responsible for coordinating these corrective actions to completion. Additional reporting requirements associated with the installed components will be evaluated under 10CFR50.72 as required.

**Advice related to the defect:**

Other affected customers have been notified via the PRIME Measurement Products Nuclear Industry Advisory, entitled Barton Transmitter Defective Connectors.

Based on the information provided from PRIME Measurement Products and evaluating the application and use of the transmitters in the plant, Callaway Engineering department has concluded this issue does constitute a defect as defined in 10CFR Part 21. However, Callaway cannot determine if the potential for a significant safety hazard or exceeding of a technical specification limits could exist at another nuclear power plant.